

Abstract of the Disclosure

The present research provides a high-density magnetic ceramic composition for microwave application and a preparation method thereof. The magnetic ceramic composition of this research includes Yttrium iron garnet (YIG, $\text{Y}_3\text{Fe}_5\text{O}_{12}$) as its basic element and a little amount of additional element, silicon oxide (SiO_2), which is expressed as: $\text{Y}_3\text{Fe}_5\text{O}_{12} + x \text{SiO}_2$ ($0.05 \leq x \leq 5 \text{ mol\%}$). The magnetic ceramic composition is prepared by measuring proper amounts of ferric oxide (Fe_2O_3), yttrium oxide (Y_2O_3) and SiO_2 , mixing them, calcining the mixture, and molding and sintering them. Since the magnetic ceramic composition of the present research has very little magnetic loss, it can be used in components for communication in a microwave band, usefully.